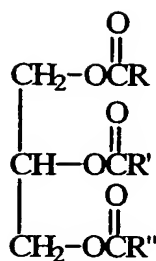


What is claimed is:

1. A composition comprising the reaction product of a fatty oil, a diamine, and a molybdenum source in which the reaction product is formed in the absence of volatile  
5 organic solvent.
2. The composition according to claim 1, wherein molybdenum source is molybdeum trioxide.
3. The composition according to claim 1, wherein the fatty oil is selected from a vegetable oil and a triglyceride, or a mixture thereof.
- 10 4. The composition according to claim 1, wherein the fatty oil is selected from groundnut oil, coconut oil, linseed oil, palm kernel oil, olive oil, cottonseed oil, grapeseed oil, corn oil, canola oil, palm oil, peanut oil, safflower seed oil, sesame seed oil, castor oil, rapeseed oil, soyabean oil, sunflower oil, herring oil, sardine oil, lard, menhaden oil, hazel nut oil, walnut oil, and tallow, and mixtures thereof.
- 15 5. The composition according to claim 1, wherein the fatty oil is a triglyceride having the formula:

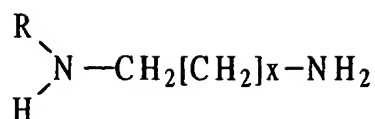
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wherein R, R', and R'' each independently represents a saturated or unsaturated hydrocarbon

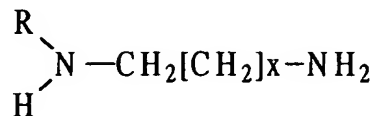
- 5 chain group having about 8 to about 22 carbon atoms.
6. The composition according to claim 1, wherein the vegetable oil comprises canola oil.
7. The composition according to claim 1, wherein the diamine is selected from phenylaminopropylamine, hexylaminopropylamine, benzylaminopropylamine, octylaminopropylamine, octylaminoethylamine, dodecylaminopropylamine,
  - 10 dodecylaminoethylamine, hexadecylaminopropylamine, hexadecylaminoethylamine, octadecylaminopropylamine, octadecylaminoethylamine, isopropyloxypropyl-1,3-diaminopropane, octyloxypropyl-1,3-diaminopropane, decyloxypropyl-1,3-diaminopropane, dodecyloxypropyl-1,3-diaminopropane, tetradecyloxypropyl-1,3-diaminopropane, isodecyloxypropyl-1,3-diaminopropane, isododecyloxypropyl-1,3-diaminopropane,
    - 15 isotridecyloxypropyl-1,3-diaminopropane, mono-substituted diamines derived from fatty acids, N-coco alkyl-1,3-propanediamine, N-tallow alkyl-1,3-propanediamine, and N-oleyl-1,3-propanediamine, and mixtures thereof.
8. The composition according to claim 1, wherein the diamine has the chemical structure



wherein x is 1 or 2 and R is an alkyl or alkyloxyalkylene group.

9. The composition according to claim 8, wherein R has at least 10 carbon atoms.
- 5 10. The composition according to claim 8, wherein R further contains oxygen and is devoid of sulfur and nitrogen.
11. The composition according to claim 8, wherein R represents an alkyloxyalkylene group.
12. The composition according to claim 8, wherein R is represented by the structure
- 10  $-\text{X}_1-\text{O}-\text{X}_2$ , wherein  $\text{X}_1$  is an alkylene of 2, 3 or 4 carbons, and  $\text{X}_2$  is an alkyl moiety having 3 to 30 carbon atoms, and where  $\text{X}_2$  can be a straight or branched, saturated or partially unsaturated hydrocarbon chain.
13. The composition according to claim 1, wherein the molar ratio of diamine to fatty oil is from about 1.5:1 to about 3:1.
- 15 14. The composition according to claim 1, wherein the molar ratio of molybdenum to diamine is from about 1:1.25 to about 1.25:1.
15. The composition according to claim 1 containing less than 0.05 weight percent sulfur.
16. The composition according to claim 1 having a molybdenum content of from about 8.1 wt% to about 15 wt%.
- 20 17. The composition according to claim 1 having a molybdenum content of from 10.0 wt% to 15.0 wt%.

18. An oil soluble composition comprising the reaction product of a fatty oil, a diamine, and a molybdenum source, wherein the diamine has the chemical structure:



5 wherein x is 1 or 2, and R is an alkyloxyalkylene group represented by  $-\text{X}_1-\text{O}-\text{X}_2$ , wherein  $\text{X}_1$  is an alkylene of 2, 3 or 4 carbons, and  $\text{X}_2$  is an alkyl moiety having 3 to 30 carbon atoms, and wherein the fatty oil comprises a triglyceride having fatty acid moieties, and said fatty acid moieties comprise  $\text{C}_{12}$  to  $\text{C}_{22}$  hydrocarbon chains.

10 19. The oil soluble composition according to claim 18, wherein the molybdenum source comprises molybdenum trioxide.

20. The oil soluble composition according to claim 18, wherein x is 2,  $\text{X}_1$  is 2, 3 or 4, and  $\text{X}_2$  is an alkyl group having 3 to 20 carbon atoms.

21. The oil soluble composition according to claim 18, wherein the molar ratio of diamine to fatty oil is from about 1.5:1 to about 3:1.

15 22. A composition according to claim 1, said composition diluted with a process, mineral or synthetic oil.

23. A lubricating oil composition comprising a major amount of an oil of lubricating viscosity, and a minor amount of a composition according to claim 1 present in an amount sufficient to provide at least 50 ppm of molybdenum in the lubricating oil composition.

20 24. A composition according to claim 18, said composition diluted with a process, mineral or synthetic oil.

25. A process for preparing a molybdenum-containing composition, comprising reacting a fatty oil, a diamine, and a molybdenum source, in the absence of volatile organic solvent.

26. The process according to claim 25, which comprises:

(a) reacting a fatty oil with a diamine to form an intermediate reaction mixture, and

(b) adding a molybdenum source to thus obtained intermediate reaction mixture, wherein (a) and (b) are performed without introducing volatile organic solvent.

27. The process according to claim 26, wherein the intermediate reaction mixture comprises an aminoamide/glycerol carboxylate mixture prepared by combining a glycerol ester of a fatty acid selected from a fatty oil, vegetable oil, triglyceride, or a mixture thereof, with a mono-substituted alkylene diamine.

28. The process according to claim 27, further comprising incorporating molybdenum into the intermediate reaction mixture by combining a molybdenum source with the aminoamide/glycerol carboxylate mixture.

29. The process according to claim 27, further comprising combining and heating the glycerol ester of a fatty acid and the mono-substituted alkylene diamine with mixing at a temperature between about 100 degrees Celsius and about 150 degrees Celsius.

30. The process according to claim 27, wherein the molybdenum source is molybdenum trioxide.

31. The process according to claim 27, wherein the molybdenum source and water are combined with the aminoamide/glycerol carboxylate mixture for a time and at a temperature sufficient to produce a molybdenum-containing reaction product.

32. The process according to claim 31, wherein the time is from 1 to about 10 hours and the temperature is from about 100 degrees Celsius to about 150 degrees Celsius.

33. A composition produced by the process of claim 26.

34. The composition of claim 33, wherein the composition contains less than 0.05 wt% sulfur.

35. The composition of claim 33, wherein the composition comprises from 10.0 wt% to 15.0 wt% molybdenum.

5 36. The composition of claim 33, wherein the composition comprises between 8.1 wt% and 11.4 wt% molybdenum.

37. A process of lubricating a crankcase comprising adding the composition of claim 1 to a crankcase.

38. A crankcase lubricated with a composition of claim 1.